

**Table 4.1 – Projections of Renewable Electricity Net Capacity**

(Gigawatts)

Renewable Energy	Data Sources	Projections				
		2005	2010	2015	2020	2025
Geothermal	AEO2005 - Reference Case	2.19	2.21	2.66	3.45	4.62
	AEO2005 - High Renewables		2.21		5.63	7.30
	EERE GPRA FY05		6.50	8.20	10.00	12.20
Wind	AEO2005 - Reference Case	8.18	8.88	9.29	10.45	11.25
	AEO2005 - High Renewables		8.88		11.63	13.97
	EERE GPRA FY05		14.60	32.30	63.90	67.70
Solar <sup>1</sup>	AEO2005 - Reference Case	0.61	0.98	1.14	1.60	2.72
	AEO2005 - High Renewables		0.99		1.80	3.23
	EERE GPRA FY05		2.20	5.20	13.60	26.50
Hydroelectric	AEO2005 - Reference Case	79.10	79.21	79.21	79.21	79.21
	AEO2005 - High Renewables		79.21		79.21	79.21
	EERE GPRA FY05		78.90	78.90	78.90	78.90
Biomass/Wood (excludes cogen)	AEO2005 - Reference Case	1.78	1.83	2.06	2.75	4.50
	AEO2005 - High Renewables		1.78		2.62	5.18
	EERE GPRA FY05		2.10	2.10	2.20	2.70
MSW and LFG	AEO2005 - Reference Case	3.68	3.83	3.89	3.92	3.93
	AEO2005 - High Renewables		3.83		3.96	3.97
	EERE GPRA FY05 <sup>2</sup>		4.00	4.20	4.40	4.40
<b>Total Renewable Energy</b>	AEO2005 - Reference Case	100.18	102.09	103.80	107.56	112.99
	AEO2005 - High Renewables		102.42		112.37	121.57
	EERE GPRA FY05 <sup>3</sup>		105.40	116.00	133.90	147.70

**Sources:** EIA Annual Energy Outlook 2005, DOE/EIA-0383 (2005) (Washington, D.C., February), Tables A16 and E7. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Projected Benefits of Federal Energy Efficiency Programs: FY2005 Budget Request*, prepared by the National Renewable Energy Laboratory, NREL/TP-620-36407 (May 2004).

**Notes:** OnLocation GPRA05 benefits estimates do not estimate any programmatic influence on biomass power since the biomass program has been redirected away from biomass power to integrated biorefinery technologies. Total represents portfolio case values, while individual program values represent each program case. The portfolio case accounts for program interactions and micro-price feedback effects.

<sup>1</sup> Solar thermal and photovoltaic energy.

<sup>2</sup> EERE does not have an R&D program for Biomass, LFG/MSW and thus are not included in GPRA projections

<sup>3</sup> Biomass, MSW and LFG are not included in the portfolio value. The portfolio values do not equal the summed values of the individual programs, as the portfolio analysis accounts for program interactions and micro-price feedback effects. Total includes biomass combined heat and power and on-site electricity-only plants for industrial and commercial sectors not detailed above.

**Table 4.2 – Projections of Renewable Electricity Net Generation**

(Billion Kilowatthours)

	Data Sources	Projections				
		2005	2010	2015	2020	2025
<b>Renewable Energy</b>						
Geothermal	AEO2005 - Reference Case	12.07	12.33	16.09	22.83	32.78
	AEO2005 - High Renewables		12.33		41.33	55.65
	EERE GPRA FY05		43.00	57.40	71.80	89.20
Wind	AEO2005 - Reference Case	23.55	25.89	27.34	31.61	34.52
	AEO2005 - High Renewables		25.89		36.15	44.60
	EERE GPRA FY05		47.10	110.70	234.40	249.80
Solar <sup>1</sup>	AEO2005 - Reference Case	1.08	1.94	2.32	3.35	5.70
	AEO2005 - High Renewables		1.95		3.74	6.73
	EERE GPRA FY05		2.20	8.20	22.20	33.80
Hydroelectric	AEO2005 - Reference Case	294.17	306.21	306.36	306.62	306.91
	AEO2005 - High Renewables		306.21		306.63	306.91
	EERE GPRA FY05		302.70	303.70	306.90	307.20
Biomass/Wood (without cogeneration)	AEO2005 - Reference Case	20.64	27.61	30.01	32.35	37.35
	AEO2005 - High Renewables		29.58		33.63	44.08
	EERE GPRA FY05		21.40	22.30	22.40	24.50
MSW and LFG	AEO2005 - Reference Case	26.58	27.82	28.31	28.60	28.73
	AEO2005 - High Renewables		27.82		28.96	29.11
	EERE GPRA FY05 <sup>2</sup>		28.90	30.30	31.30	31.50
<b>Total Renewable Energy</b>	AEO2005 - Reference Case	408.94	435.54	446.64	465.21	489.19
	AEO2005 - High Renewables		439.72		498.09	541.58
	EERE GPRA FY05 <sup>3</sup>		436.20	483.10	563.30	626.10

**Sources:** EIA Annual Energy Outlook 2005, DOE/EIA-0383 (2005) (Washington, D.C., February), Tables A16 and E7. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Projected Benefits of Federal Energy Efficiency Programs: FY2005 Budget Request, prepared by the National Renewable Energy Laboratory, NREL/TP-620-36407 (May 2004).

**Notes:** OnLocation GPRA05 benefits estimates do not estimate any programmatic influence on biomass power since the biomass program has been redirected away from biomass power to integrated biorefinery technologies. Total represents portfolio case values, while individual program values represent each program case. The portfolio case accounts for program interactions and micro-price feedback effects.

<sup>1</sup> Solar thermal and photovoltaic energy.

<sup>2</sup> EERE does not have an R&D program for LFG/MSW and thus are not included in GPRA projections

<sup>3</sup> Biomass, MSW and LFG are not included in the portfolio value. The portfolio values do not equal the summed values of the individual programs, as the porfolio analysis accounts for program interactions and micro-price feedback effects.

## Table 4.3 – Projections of Renewable Electricity Carbon Dioxide Emissions Savings

(Million Metric Tons Carbon Equivalent per Year)

	Data Sources	Projections				
		2005	2010	2015	2020	2025
<b>Renewable Energy</b>						
Geothermal	AEO2005 - Reference Case	2.32	2.45	2.97	3.75	5.03
	AEO2005 - High Renewables		2.45		6.79	8.54
	EERE GPRA FY05		8.54	10.60	11.80	13.68
Wind	AEO2005 - Reference Case	4.53	5.14	5.05	5.19	5.30
	AEO2005 - High Renewables		5.14		5.94	6.84
	EERE GPRA FY05		9.35	20.45	38.52	38.32
Solar <sup>1</sup>	AEO2005 - Reference Case	0.21	0.39	0.43	0.55	0.87
	AEO2005 - High Renewables		0.39		0.61	1.03
	EERE GPRA FY05		0.44	1.51	3.65	5.18
Hydroelectric	AEO2005 - Reference Case	56.63	60.82	56.59	50.39	47.08
	AEO2005 - High Renewables		60.82		50.39	47.08
	EERE GPRA FY05		60.12	56.10	50.43	47.12
Biomass/Wood (without cogeneration)	AEO2005 - Reference Case	3.97	5.48	5.54	5.32	5.73
	AEO2005 - High Renewables		5.88		5.53	6.76
	EERE GPRA FY05		4.25	4.12	3.68	3.76
MSW and LFG	AEO2005 - Reference Case	5.12	5.53	5.23	4.70	4.41
	AEO2005 - High Renewables		5.53		4.76	4.47
	EERE GPRA FY05 <sup>2</sup>		5.74	5.60	5.14	4.83
<b>Total Renewable Energy</b>	AEO2005 - Reference Case	78.72	86.51	82.50	76.45	75.04
	AEO2005 - High Renewables		87.34		81.85	83.08
	EERE GPRA FY05 <sup>3</sup>		86.64	89.23	92.57	96.04
Heat Rate	Btu/kWh	10,796	10,593	9,019	8,266	7,891
Carbon Coefficient	MMTCE/Tbtu	0.01783	0.01875	0.02048	0.01988	0.01944

**Sources:** Generation data: *EIA Annual Energy Outlook 2005*, DOE/EIA-0383 (04) (Washington, D.C., February 2005), Tables A16 and F8. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Projected Benefits of Federal Energy Efficiency Programs: FY2005 Budget Request*, prepared by the National Renewable Energy Laboratory, NREL/TP-620-36407 (May 2004).

Carbon emission coefficients and heat rates: U.S. Department of Energy, GPRA2003 Data Call, Appendix B, pages B-13 and B-16, (September 14, 2001).

**Notes:**

Carbon Emissions Savings based on calculation:  $(10^9 \text{ kWh}) * (\text{Btu/kWh}) * (\text{TBtu}/10^{12} \text{ Btu}) * (\text{MMTCE/TBtu})$

<sup>1</sup> Solar thermal and photovoltaic energy.

<sup>2</sup> EERE does not have an R&D program for LFG/MSW and thus are not included in GPRA projections

<sup>3</sup> Biomass, MSW and LFG are not included in the portfolio value. The portfolio values do not equal the summed values of the individual programs, as the portfolio analysis accounts for program interactions and micro-price feedback effects.